A New *Pleocoma* from Southern California with Notes on Additional Species

(Coleoptera; Scarabaeidae)

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Although much has been written concerning the distribution and habits of the beetles of the genus *Pleocoma*, few new species have been described in recent years. Many anomalous specimens from previously unrecorded localities exist in collections, but the extreme variability of phenotypes exhibited by some species already described makes the naming of new forms from but a few specimens seem unwise. Series of both sexes are necessary from each locality to properly understand intraspecific variations in the *Pleocoma*.

In the past few winters it has been the author's good fortune to collect a large series of *Pleocoma* from Southern California which represents a new species, and to also be able to clarify somewhat the previously published status, distribution, and habits of several other local species of *Pleocoma*.

Pleocoma linsleyi Hovore, new species

(Figs. 1–3, 5)

MALE.—Form robust, broadly oblong-oval, only moderately convex, dorsum slightly flattened (Fig. 1); integument reddish brown; pubescence rich golden yellow. *Head* reddish brown, narrowly margined with piceous, clothed with long golden hairs; dorsal surface coarsely, irregularly punctate, with broad smooth area extending from lateral base of vertical horn anteriorly to apex of ocular canthus; clypeal process small, only moderately reflexed, apex with shallow, broadly obtuse notch, apical angles of notch acute, rounded; vertical horn short, sides gradually narrowed toward apex, apex with shallow, obtuse notch, apical angles of notch rounded, anterior face of horn concave medially, surface coarsely punctate, densely clothed with very long golden hairs; ocular canthi projecting forward slightly from a right angle, anterior edge sinuate, dorsal surface slightly concave, smooth, punctation light, scattered, punctures small, irregular, often setose; palpi and antennae light reddish brown, lamellae of antennae darker, scape stout, subconical, slightly produced anteriorly at apex, second segment moniliform, strongly oblate, third segment elongate, subequal or equal to scape in length, slightly reflexed, with conspicuous flattened process projecting anteroventrally and extending from near base almost to apex of segment, process most pronounced apically, fourth segment transverse with acute process, segments five to eleven distinctly lamellate, fifth segment with lamella about three-fifths as long as that of sixth segment, lamella of sixth segment more than four-fifths as long as that of seventh segment, that of

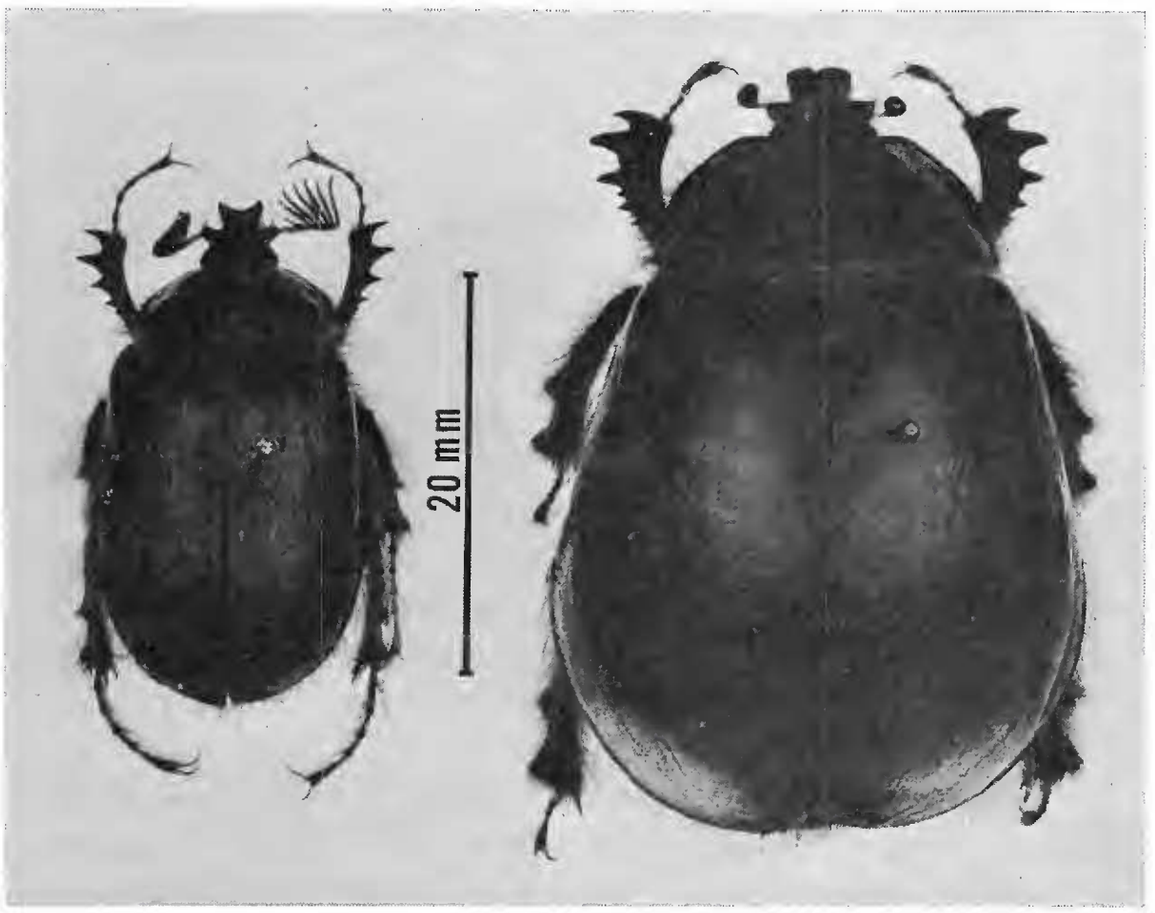

FIG. 1. *Pleocoma linsleyi* Hovore. Dorsal view, holotype male, left; allotype, right.

seventh subequal to that of eighth, that of eighth only slightly shorter than that of ninth, lamella of ninth segment longest, those of tenth and eleventh only slightly shorter than ninth, and of decreasing length, ratios of segments five to eleven in holotype male 24:40:45:46:47:45:44 (Fig. 2). *Pronotum* approximately twice as wide as long, barely widest at posterior angles, posterior angles broadly rounded, lateral discal impressions distinct, maculate with piceous; disc convex with feeble transverse median ridge, anterior median impression lacking, indicated only by slight flattening of discal surface and indistinct impunctate median line at anterior margin, pubescence entirely absent, surface shining, finely, moderately densely punctate, punctures coalescing anteriorly, and becoming less distinct and more widely spaced laterally. Legs dark reddish brown, densely clothed with long golden hairs. *Scutellum* finely, sparsely punctate centrally, thinly clothed with long recumbent hairs. *Elytra* rich reddish brown, transparent, shining, fairly uniformly punctate, punctures irregular in size, denser in striae, sutural striae deep, coarsely punctate, geminate striae at margins of costae distinct, deeply coarsely punctate, costae elevated, impunctate, nearly attaining elytral apices. *Abdomen* light reddish brown, sternites finely, sparsely punctate, most punctures setose. Length 23–28 mm.

FEMALE.—Form ovate, robust; color dark reddish brown; pubescence light reddish with golden reflections (Fig. 1). *Head* with clypeus coarsely, densely punctate, expanded apically, apical angles obtuse, rounded, anterior margin convex, median notch small, shallow, rounded; vertical horn very short, stout, apical notch broadly obtuse, apices rounded; antennae pale reddish brown, scape and lamellae darker,

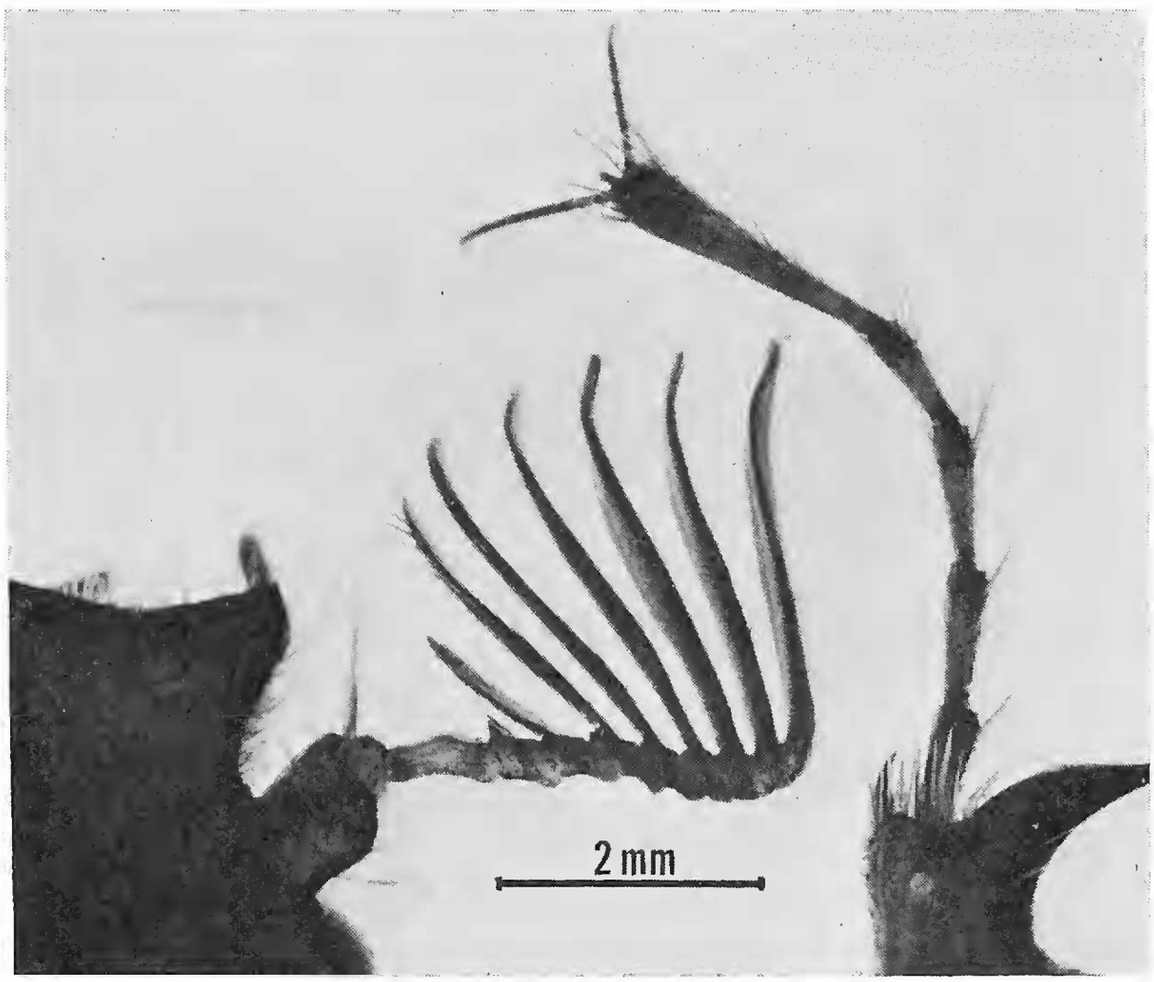

FIG. 2. *Pleocoma linsleyi* Hovore. Dorsal view, right antenna, holotype male.

third segment near apex slightly produced anteroventrally, fourth segment angulate with short, acute projection, fifth segment with short lamella, segments six to eleven lamellate, forming club. *Pronotum* convex, shining, dark reddish brown, lighter laterally, narrowly margined with piceous, slightly more than twice as wide as long, barely widest at posterior angles, posterior angles rounded, disc coarsely, irregularly punctate, punctures forming indistinct transverse rows, denser and larger anteriorly, interrupted medially by longitudinal impunctate line. *Scutellum* sparsely punctate anteriorly, few punctures with short recumbent hairs. *Elytra* widest behind middle, transparent, surface shining, finely, irregularly punctate, costae slightly elevated, with occasional minute scattered punctures, attaining apical third of elytra, sutural striae distinct, coarsely punctate, deeply impressed, geminate striae at costae, feebly impressed, finely, irregularly punctate. Length 35–40 mm.

Holotype male, OLD RIDGE ROUTE, N-2, 1.5 MI. N. SANDBERG, LOS ANGELES COUNTY, CALIFORNIA, 25 October 1969 (dug out of soil), F. Hovore, collector; (deposited in the collection of the Los Angeles County Museum of Natural History). Additional paratype males: 89, same locality as holotype, dates and collectors as follows: 14 December 1968 (F. Hovore, dug out of soil, 1; J. A. Robertson, dug out of soil, 1); 19 December 1968 (F. Hovore, dug out of soil, 1); 25 October 1969

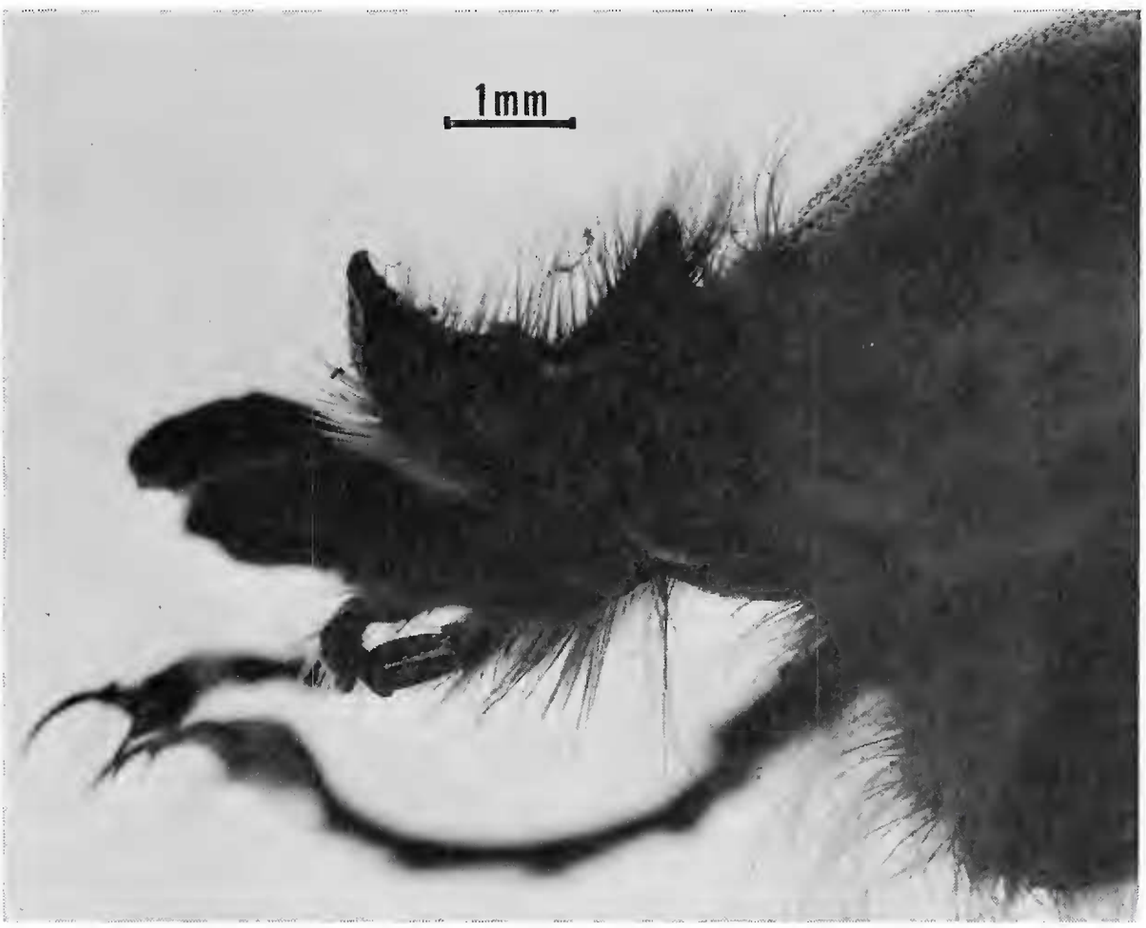

FIG. 3. *Pleocoma linsleyi* Hovore. Left lateral view of head and pronotum, male.

(F. Hovore, dug out of soil, 3); 31 October 1969 (F. Hovore, dug out of soil, 1); 15 November 1970 (F. Hovore, dug out of soil, 2); 1 December 1970 (F. Hovore, at blacklight, 14); 2 December 1970 (F. Hovore, at blacklight, 66). Allotype, same locality as holotype, 14 December 1968 (dug out of soil), F. Hovore, collector. Additional paratype females: same locality as holotype and allotype, 22 October 1970 (F. Hovore, dug out of soil, 1); 15 November 1970 (F. Hovore, dug out of soil, 1). Paratypes are on deposit in the author's collection; California Academy of Sciences; California Insect Survey Collection, Berkeley; Los Angeles County Museum; U. S. National Museum; J. A. Robertson collection.

Of the presently known species, *Pleocoma linsleyi* seems most closely related to *P. badia* Fall and *P. conjungens* Horn. The male differs from *P. conjungens* by the reddish brown color of the dorsal surface, less prominent basal angles of the pronotum, and larger average size (average size about 25 mm for *P. linsleyi*, 22 mm for *P. conjungens*). It is distinguished from *P. badia* by the more evenly convex, shining, less densely punctate pronotal surface, the absence of a hairy anterior pronotal impression, the greatly reduced structures of the clypeal and

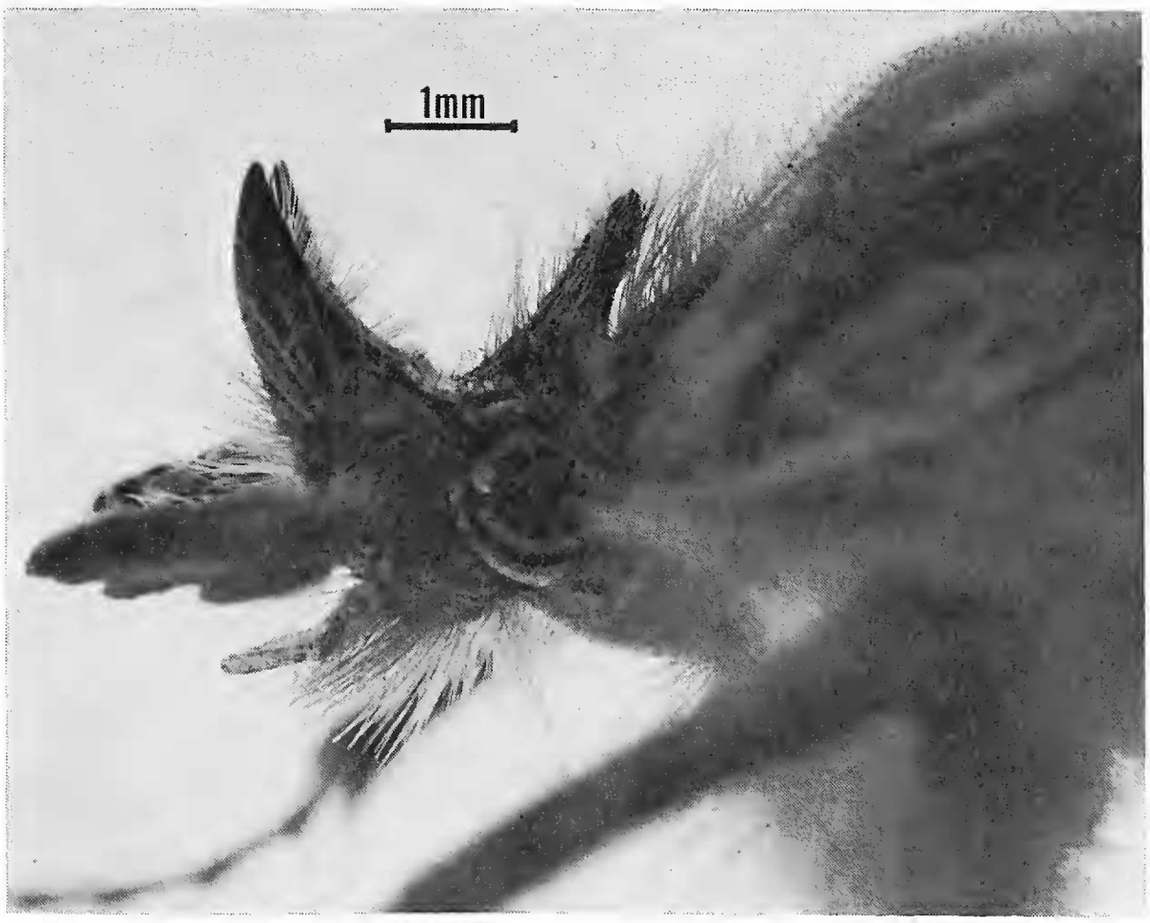

FIG. 4. *Pleocoma badia* Fall. Left lateral view of head and pronotum, male.

vertical horns (Figs. 3 & 4), the elevated elytral costae, and the flattened anteroventral process of the third antennal segment. *Pleocoma linsleyi* is the third species to have this latter character specifically noted in the literature, the others being *P. hoppingi* Fall (in Davis, 1935), and *P. octopagina* Robertson (1970). Females of *P. linsleyi* differ from those of *P. badia* by the broadly, obtusely rounded clypeal emargination, the more elevated elytral costae, the less angulate pronotal angles, the distribution and density of the pronotal punctation, and the previously discussed configuration of the third antennal segment (Figs. 5 & 6).

Within the series of males of *P. linsleyi* before the author there is a great amount of color and structural variation between individuals. The elytra range from very pale reddish brown to deep chestnut, and five examples have the pronotum clouded medially with piceous. The form of the clypeal emargination, the extent of the smooth areas on the dorsal surface of the head, the shape of the ocular canthi, and the relative lengths of the lamellae on the fifth and sixth antennal segments also exhibit a wide range of variation within the material at hand. However, the diagnostic specific characters are consistent for all the specimens.

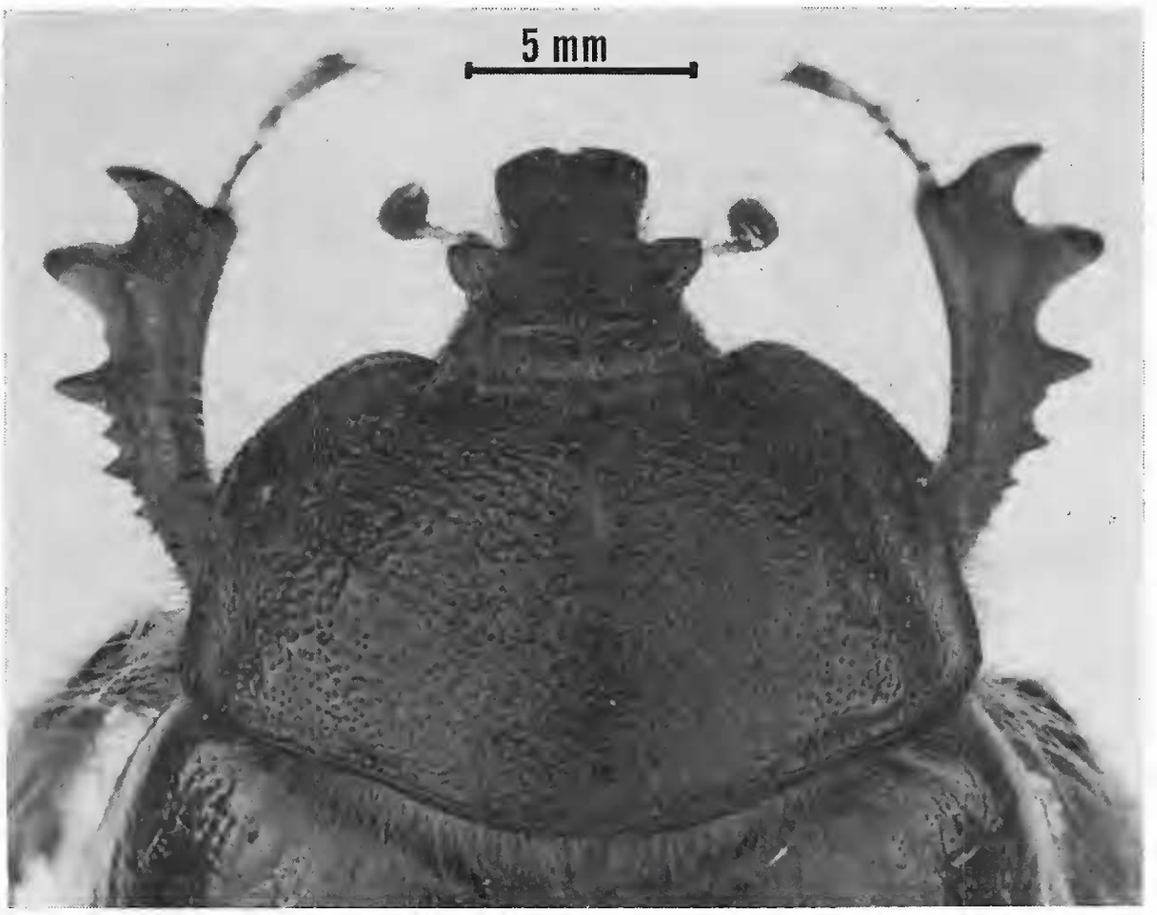

FIG. 5. *Pleocoma linsleyi* Hovore. Dorsal view of head and pronotum, allotype female.

An additional series of thirty-nine male *Pleocoma* from Tehachapi Mountain Park, Kern County, Calif., has been made available to the author for study through the generosity of T. W. Taylor, G. Walters, and B. Streit. These specimens are clearly *Pleocoma linsleyi*, and although the sample has a slightly higher percentage of individuals with dark elytra than does the paratype series, and in all but one specimen the fifth antennal lamella is two-thirds or more as long as that of the sixth, it is the opinion of the author that separate taxonomic status for this population is not warranted. The percentage of character intergradation between the two samples is very high, as is the individual variation within each series, and on this basis it would seem inadvisable to give subspecific recognition to the Tehachapi population. Furthermore, the distance between the type locality and Tehachapi Mountain Park is only about twenty miles of relatively unbroken mountain range, and future collecting of the intervening areas may show *P. linsleyi* as having one continuous range between the two localities.

BIOLOGY.—The larvae of *P. linsleyi* feed on rootlets of *Quercus chrysolepis* Liebm., and have been taken at depths of between two and eight

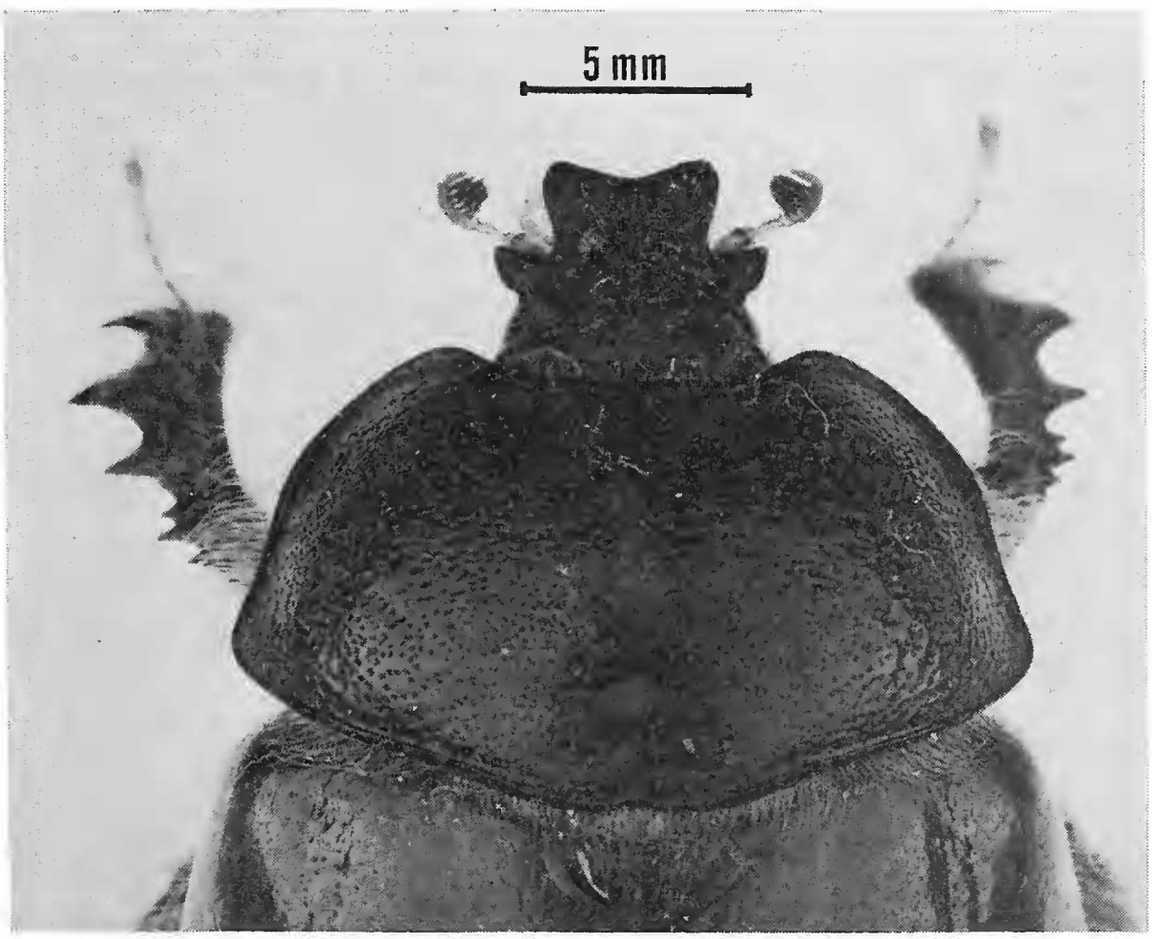

FIG. 6. *Pleocoma badia* Fall. Dorsal view of head and pronotum, female.

feet from the ground surface. Unlike most scarab larvae, some *Pleocoma* grubs are sedentary feeders, enlarging their smooth, hard-walled burrows as their body size increases. The author has taken grubs ranging in length from 13 to 60 mm; the former size probably that of first or second instars, the latter size that of nearly mature female grubs. The rootlet forms an enlarged tissue nodule at the point of larval feeding, assuring the larva of a constant food supply at the burrow. The author has also observed this type of rootlet feeding and nodule development in *P. badia* (in *Quercus*), *P. puncticollis* (in *Ceanothus*), and *P. venturae* (in *Quercus*).

Pupation probably occurs in late summer or early fall, the author having taken adults in their pupal cells as early as 22 October. Adult activity of *P. linsleyi* at the type locality appears to begin only after the area has received over three inches of rain, with the heaviest flights taking place at dawn during or shortly after a light drizzle.

Pleocoma linsleyi is preyed upon in the larval and pupal stages by a large dipteran larva, tentatively identified at the time of this writing as belonging to the family Asilidae. The author has collected these larvae

from grubs and pupae of both sexes of *P. linsleyi* at the type locality, and has taken similar dipteran larvae from the immature stages of *P. badia* and *P. venturae*. The larvae usually attack the immature *Pleocoma* through the abdomen, and in severe cases the host may be totally drained of body fluid. A single larva is apparently able to parasitize more than one grub or pupa, travelling through the soil along roots and in rock fissures from one host burrow to another.

PLEOCOMA PUNCTICOLLIS Rivers

Larvae and adults of both sexes of this large black species were taken from their burrows beneath *Ceanothus* plants in Sepulveda Pass, Los Angeles Co., California, by the author in December 1969. The only previous published speculation as to the host plant of *P. puncticollis* (Hazeltine, 1952) was for the colony at Del Mar, San Diego Co., Calif., and that record was also for *Ceanothus*.

PLEOCOMA VENTURAE Linsley

Pleocoma material in the Los Angeles County Museum of Natural History collection from Bee Rock, Griffith Park, Los Angeles, California (one male, one female), which once seemed referable only to *P. hirsuta* Davis of the known species (Linsley, 1941), now proves to represent *P. venturae* Linsley. This latter species was not yet known to Linsley at the time of his examination of the Bee Rock specimen (the female was apparently not in the collection at that date), and the range of *P. hirsuta* was therefore incorrectly extended. It appears that *P. hirsuta* is still known only from the type specimen from the Old Ridge Route area, and that *P. venturae*, described originally from Squaw Flat, Ventura County, has a much more extensive distribution than was previously assumed. Additional examples in the Los Angeles Museum from Glenoaks Canyon, Glendale, Los Angeles County, and specimens collected by the author and M. Gannon in La Crescenta and Tujunga, Los Angeles County, give further range extension to *P. venturae*. The author has also collected *P. venturae* from the area of the type locality, and from Glenoaks Canyon, and the samples are virtually identical within the limits of their variation, as well as agreeing with the original description and paratype material of *P. venturae*.

PLEOCOMA NITIDA Linsley

Hazeltine (1952) speculated that this species seems to require precipitation to initiate flight, and that males are not attracted to light. A series of 39 males collected at blacklights and automobile headlights

by the author and D. G. Marqua 5 miles N.E. of Santa Margarita, San Luis Obispo Co., Calif., proves that *P. nitida* does indeed come to lights (the type specimen was also collected as light) (Linsley, 1941), and that it does not require immediate precipitation for flight activity since our specimens were collected approximately four hours after rain had ceased and under clearing sky conditions.

Acknowledgments

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Robertson, J. 1970. A new species of *Pleocoma* from Southern California. Pan-Pac. Entomol., 46: 106–111.

ZOOLOGICAL NOMENCLATURE: Announcement A.(n.s.)87

Required six-month's notice is given of the possible use of plenary powers by the International Commission on Zoological Nomenclature in connection with the following names listed by case number:

(see *Bull. Zool. Nomencl.* 27, pts. 3/4, 23 December 1970):

1733. Validation of TRYPETID—as stem of *Trypetes* (Coleoptera)

1798. Emendation to *Argiope* of *Argyope* Audouin 1826 (Aranaea)

(see *Bull. Zool. Nomencl.* 27, pts. 5/6, 29 March 1971):

195. Type-species for *Siphona* Meigen, 1803 (Diptera)

Comments should be sent in duplicate, citing case number, to the Secretary, International Commission on Zoological Nomenclature, c/o British Museum (Natural History), Cromwell Road, London SW7, England. Those received early enough will be published in the Bulletin of Zoological Nomenclature.—W. E. China, *Assistant Secretary to the International Commission on Zoological Nomenclature.*